



## Analog Front End Integrated Circuit for 13.56MHz RFID Base Station

### General Description

The EM4094 is an integrated analog system for 13.56MHz RFID reader system. It is highly versatile so it can be used in different reader systems having sub-carrier frequencies from 212kHz to 848kHz, hence covering ISO 14443 and ISO 15693 standards. The adaptability is achieved using a 3 wires serial interface to program the system option bits. The transmitter generates 200mW output power into 50Ω load and is capable of OOK or ASK modulation.

### Features

- ISO 15693 & ISO14443 compatibility
- Oscillator using 13.56MHz quartz (selectable gm)
- Antenna driver using OOK or ASK modulation using single antenna driver
- ASK modulation adjustable in range from 7% to 30%
- High output power 200mW from 5V supply
- Antenna short circuit protection
- Multiple receiver input for high communication reliability
- AM/PM demodulation with AGC signal amplifier

- 848KHz BPSK internal decoder
- Multiple sub-carrier receiving compatibility (212kHz, 424kHz and 848kHz)
- Multiple sub-carrier coding compatibility (Manchester, BPSK)
- Built-in receive low-pass filter cut-off frequency selectable between 400kHz and 1MHz
- Built-in receive high-pass filter cut-off frequency selectable between 100kHz, 200kHz and 300kHz
- Selectable receive gain
- Serial 3 pin interface for option selection
- Power down mode controlled by the 3 wires SPI
- Output Power: 200mW for a SO20W Package  
100mW for a SO16W Package
- Operation temperature range -40°C to +85°C

### Applications

- Low cost reader
- Hand held reader

### Typical application

